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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,924	03/01/2004	Po-Sung Kao	250112-1040	1436
24504	7590	04/07/2005	EXAMINER	
THOMAS, KAYDEN, HORSTEMEYER & RISLEY, LLP 100 GALLERIA PARKWAY, NW STE 1750 ATLANTA, GA 30339-5948			CHANG, AUDREY Y	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 04/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/790,924

Applicant(s)

KAO ET AL.

Examiner

Audrey Y. Chang

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Evans (PN. 6,011,662) in view of the patent issued to Poradish (PN. 5,777,694).**

Evans teaches a *color filter wheel assembly* (100) that is comprised of a *hub* (110, Figures 1, 2A, 2B and 5-6) serves as the *carrier* that is rotated around a *central axis* and *color elements* (120), serves as the *color filter* is fixed to the carrier. Evans teaches that the carrier or hub further comprises a *plurality of pegs* (151 and 152) that are *symmetrically* formed around the central axis (with regard to *claims 3 and 8*) and adhered to the hub or carrier for holding and fixing the color filter to the carrier or hub, (with regard to *claims 5 and 10*).

This reference has met all the limitations of the claims with the exception that it does not teach *explicitly* that the pegs serves as the *balancing elements* such that the center of mass of the color filter assembly is on the central axis. However it is implicitly true that the pegs are having the appropriate mass such that the color filter wheel when is rotated will not experience severe mass imbalance so that the filter wheel does not either lose balance or wobble which would seriously affect the color balance of the color filter wheel. And by standard *mechanic*, the way to ensure the rotation of the color filter wheel to be proper without wobbling is to have the center of mass of the wheel located on the central axis, (off center of mass will cause non-zero torque force to the wheel and will cause wobbling of the wheel) and such is resulted by symmetrically distributed the weight or mass of the color wheel around the central axis.

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Poradish in the same field of endeavor teaches to make the hub of the color wheel to be mass loaded around the drive shaft or central axis so that the mass balance is *enhanced*, (please see Figures 3-5 and column 5, lines 27-31). The mass around the shaft or the central axis is *symmetrically* formed. It would then have been obvious to one skilled in the art to *particularly* design the pegs of **Evans** to have mass distribution that will make the center of mass of the whole color wheel located on the central axis for the benefit of ensuring and enhancing the mass balance of the color filter wheel and therefore ensuring and enhancing the color filtering effect.

These references also do not teach that the hub or carrier has a plurality of holes for receiving these pegs or balancing elements and the pegs are individually removable. **With regard to claims 4 and 9**, these references also do not teach that the holes are threaded for the pegs to moving therein. However using *threaded holes* and *screws* as fasten means to hold down elements are extremely well known in the art such modification would have been obvious to one skilled in the art for the benefit of making the fastening of the color filter elements with more ease and providing means for adjusting the tightness of the holding by adjusting the tightness of the screws. **With regard to claims 2 and 7**, the geometrical shapes of the holes are considered to be an obvious design choice to one skilled in the art for the benefit of making the hub or carrier with desired arrangement that suited for particular application requirement and for perhaps the ease of engaging the screws or pegs at a desired location within the holes.

With regard to claim 6, **Evans** further teaches to have a *motor* (720, Figure 7) and a *shaft* (710) that is adapted to the center of the hub, which serves as the central axis, of the color wheel for rotating the color filter wheel.

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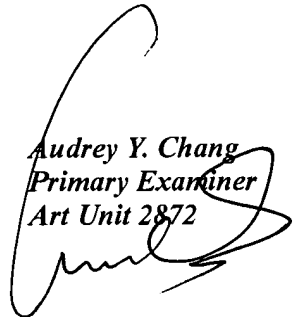
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Audrey Y. Chang
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.